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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,652	08/07/2001	Gang Yu	UA0022USDIV	1732

23906 7590 06/16/2003

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EXAMINER

LUU, THANH X

ART UNIT PAPER NUMBER

2878

DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,652

Applicant(s)

YU, GANG

Examiner

Thanh X Luu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 19-29 and 40 is/are pending in the application.
- 4a) Of the above claim(s) 19-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to amendments and remarks filed May 5, 2003. Claims 1, 19-29 and 40 are currently pending.

This application contains claims 19-29 drawn to an invention nonelected without traverse in Paper No. 6. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friend et al. (U.S. Patent 5,523,555).

Regarding claims 1 and 40, Friend et al. disclose (see Figure 1) a photosensor on a common substrate, comprising an active layer (6) of conjugated semiconducting polymer (PPV) bounded on one side by a first electrode (8) and on the other side by a second electrode (4), with a detector (18) bridging the first and second electrodes and capable of detecting an electrical output from the photosensor in response to an incident light sensed by the photosensor. Friend et al. further disclose (see Figure 9) the incident light has multiple spectral bands (a spectral band corresponds to a range in energy bands since $E=1240/\lambda$; Energy (eV) = $1240/\text{Wavelength (nm)}$) and wherein more than one spectral band (a range of energy bands) is sensed simultaneously. Friend et

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al. also disclose (see Figure 9) the detection of multiple spectral bands is achieved by device thickness adjustment (50nm, 90nm, 150nm). That is, certain thicknesses allow for better detection (wider response curve) of the multiple spectral bands. Friend et al. do not specifically disclose the photosensor is arrayed to form an image sensor.

However, Friend et al. further teach (see column 1, lines 40-61) forming arrays of photosensors to make an image sensor. Friend et al. also recognize (see column 1, lines 60-61) that the arrays can be made of conjugated polymer. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a plurality of photosensors arrayed as claimed in the apparatus of Friend et al. to increase the detection capability and efficiency of a photosensor by forming an image sensor.

Response to Arguments

3. Applicant's arguments filed May 5, 2003 have been fully considered but they are not persuasive.

Regarding claims 1 and 40, Applicant asserts that Friend et al. do not disclose how to vary the spectral response of a sensor at constant bias voltage to allow a sensor to probe two or more distinct spectral band simultaneously. Examiner disagrees. Such language is not found in the claims. Nowhere does the claim mention a bias voltage. The claims simply state "the incident light has multiple spectral bands and wherein more than one spectral band is sensed simultaneously." As set forth above, Friend et al. do disclose the claimed invention. Figure 9 of Friend et al. shows the photosensor

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response with respect to energy (E). However, since $E=1240/\lambda$, the figure alternately shows the detector response with respect to wavelength or spectral bands.

As shown, since the curve is responsive over several wavelength ranges or bands (a range of energies), more than one spectral band is sensed simultaneously as claimed.

Further, since the thickness (see Figure 9; 50nm, 90nm, 150nm) of the device changes the response curve, the ability to detect multiple spectral bands is achieved by device thickness adjustment. Thus, as set forth above, this rejection is proper.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
June 10, 2003

A handwritten signature in black ink, appearing to read 'Thanh X. Luu', with a stylized flourish at the end.

Thanh X. Luu
Patent Examiner